

## CLAIMS

1. A linear displacement sensor comprising, in combination,  
a first end having a source of radiation,  
a second end having a receiver sensitive to such radiation,  
a telescoping housing extending between said first end and said second end, said housing having at least a first larger section and a second, smaller section disposed within said first section, and  
a plate disposed within said housing and defining an aperture,  
whereby said aperture transmits direct radiation and reduces transmission of incident radiation.
2. The linear displacement sensor of claim 1 wherein said housing has three sections.
3. The linear displacement sensor of claim 1 wherein said housing has five sections.
4. The linear displacement sensor of claim 1 wherein said housing includes means for securing to two components to be measured.
5. The linear displacement sensor of claim 4 wherein said means for securing includes a ball joint.

6. The linear displacement sensor of claim 1 further including a second plate defining a second aperture.

7. The linear displacement sensor of claim 6 wherein said apertures have distinct diameters.

8. A linear displacement sensor comprising, in combination,  
a first end having a source of radiation,  
a second end having a receiver sensitive to such radiation,  
a telescoping housing extending between said first end and said second end, said housing having at least a first larger diameter section and a second, smaller diameter section disposed within said first section, and  
a disk disposed within said housing and defining a central aperture,  
whereby said aperture passes a direct radiation and reduces passage of incident radiation.

9. The linear displacement sensor of claim 8 wherein said housing has three sections.

10. The linear displacement sensor of claim 8 wherein said housing has five sections.

11. The linear displacement sensor of claim 8 wherein said housing includes means for securing to two components to be measured.

12. The linear displacement sensor of claim 11 wherein said means for securing includes a ball joint.

13. The linear displacement sensor of claim 8 further including a second plate defining a second aperture.

14. The linear displacement sensor of claim 13 wherein said apertures have distinct diameters.

15. A linear displacement sensor comprising, in combination,  
a telescoping body having at least a first hollow section and a first closed end and a second section slidably disposed within said first section and having a second closed end,  
a radiation source disposed in one of said closed ends and a radiation receiver disposed in another of said closed ends to receive radiation from said radiation source, and  
at least one disk disposed between said radiation source and said radiation receiver having an aperture for passing radiation from said radiation source.

16. The linear displacement sensor of claim 15 wherein said radiation source is a light emitting diode.

17. The linear displacement sensor of claim 15 wherein said radiation receiver is a phototransistor.

18. The linear displacement sensor of claim 15 wherein said radiation source generates a beam of radiation and said aperture has a diameter approximately equal to said beam of radiation.

19. The linear displacement sensor of claim 15 wherein said telescoping body has at least five sections.

20. The linear displacement sensor of claim 15 wherein said telescoping body includes means for attaching devices to be measured.